CLAIMS

What is claimed is:

1. A method for enabling a mobile device to roam among access points in a wireless local area network, the mobile device capable of communicating with the access points, the method comprising the computer-implemented steps of:

establishing a secure connection from the mobile device through an initial access point to an initial gateway server;

providing connection information to a target gateway server from the initial gateway server about the secure connection, based on a triggering event that initiates a transfer of the mobile device from the initial access point to a target access point associated with the target gateway server; and

receiving the connection information at the target gateway server to maintain the secure connection from the mobile device through the target access point back to the initial gateway server.

2. The method of Claim 1, wherein the mobile device is assigned an internet protocol address by the initial gateway server and the secure connection is based on the internet protocol address, and the step of providing the connection information includes maintaining the secure connection based on the internet protocol address assigned to the mobile device.

3. The method of Claim 1, further comprising a step of providing a nested tunnel to couple the initial gateway server and the target gateway server.

4. The method of Claim 3, wherein the step of providing the nested tunnel to couple the initial gateway server and the target gateway server is based on a hardwired connection between the initial gateway server and the target gateway

server.

5. The method of Claim 1, wherein the triggering event is a movement of the mobile device out of range of the initial access point and within range of the target access point.

6. The method of Claim 1, wherein the triggering event is a determination that the target access point has a preferable level of congestion compared to a level of congestion for the initial access point.

7. The method of Claim 1, wherein the step of providing the connection information comprises extending the secure connection from the target gateway server to the initial gateway server, so that the initial gateway server decrypts secure messages originating from the mobile device.

8. The method of Claim 1, wherein the step of providing the connection information comprises establishing a virtual representation of the initial gateway server at the target gateway server.

9. A gateway system for enabling a mobile device to roam among access points in a wireless local area network, the mobile device capable of communicating with the access points, the gateway system comprising:

an initial gateway server, and

a target gateway server in communication with the initial gateway server;

wherein:

the initial gateway server establishes a secure connection from the mobile device through an initial access;

the initial gateway server provides connection information to the target gateway server about the secure connection, based on a triggering

event that initiates a transfer of the mobile device from the initial access point to a target access point associated with the target gateway server; and

the target gateway server receives the connection information to maintain the secure connection from the mobile device through the target access point back to the initial gateway server.

10. The gateway system of Claim 9, wherein the mobile device is assigned an internet protocol address by the initial gateway server, the secure connection is based on the internet protocol address, and the initial gateway server maintains the connection based on the internet protocol address assigned to the mobile device.

11. The gateway system of Claim 9, wherein the initial gateway server and the target gateway server are coupled by a nested tunnel between the initial gateway server and the target gateway server.

12. The gateway system of Claim 11, wherein the nested tunnel between the initial gateway server and the target gateway server is based on a hard wired connection between the initial gateway server and the target gateway server.

13. The gateway system of Claim 9, wherein the triggering event is a movement of the mobile device out of range of the initial access point and within range of the target access point.

14. The gateway system of Claim 9, wherein the triggering event is a determination that the target access point has a preferable level of congestion compared to a level of congestion for the initial access point.

15. The gateway system of Claim 9, wherein the target gateway server extends the secure connection from the target gateway server to the initial gateway server, so that the initial gateway server decrypts secure messages originating from the mobile device.

16. The gateway system of Claim 9, wherein the target gateway server establishes a virtual representation of the initial gateway server at the target gateway server.

17. A computer program product that includes a computer usable medium having computer program instructions stored thereon for enabling a mobile device to roam among access points in a wireless local area network, the mobile device capable of communicating with the access points, such that the computer program instructions, when performed by a digital processor, cause the digital processor to:

establish a secure connection from the mobile device through an initial access point to an initial gateway server;

provide connection information to a target gateway server from the initial gateway server about the secure connection, based on a triggering event that initiates a transfer of the mobile device from the initial access point to a target access point associated with the target gateway server; and

receive the connection information at the target gateway server to maintain the secure connection from the mobile device through the target access point back to the initial gateway server.

18. A method for enabling a mobile device to roam between a first wireless network and a second wireless network, the first wireless network substantially heterogeneous with the second wireless network, both the first wireless network and the second wireless network capable of communicating with an intermediary network, and the mobile device capable of accessing the first wireless network

and the second wireless network, the method comprising the computer-implemented steps of:

receiving a request at the first wireless network to access the second wireless network, the request being on behalf of the mobile device and indicating a network system specifying the second wireless network;

through the intermediary network, obtaining an access identifier for the second wireless network, the access identifier for use by the mobile device when accessing the second wireless network; and

providing the access identifier for the mobile device to use when accessing the second wireless network.

19. The method of Claim 18, wherein the first wireless network is a wireless local area network, the second wireless network is a cellular telecommunications network, and the mobile device is a personal digital assistant.

20. The method of Claim 18, wherein the request includes a user identification of a user of the mobile device, and the step of receiving the request includes determining an identity of the network system as a function of the user identification.

21. The method of Claim 18, wherein the step of obtaining the access identifier includes providing an authentication request based on the request to a dynamic host configuration server.

22. The method of Claim 18, wherein the access identifier is an internet protocol address and the intermediary network is the internet.

23. The method of Claim 18, wherein the step of obtaining the access identifier includes requesting the access identifier from a network gateway for the second

wireless network, the network gateway providing the access identifier from a predefined range of access identifiers allocated to the second wireless network.

24. The method of Claim 18, wherein the step of providing the access identifier includes storing the access identifier in a device database that includes a device identification for the mobile device.

25. A network gateway for enabling a mobile device to roam between a first wireless network and a second wireless network, the first wireless network substantially heterogeneous with the second wireless network, both the first wireless network and the second wireless network capable of communicating with an intermediary network, and the mobile device capable of accessing the first wireless network and the second wireless network, the network gateway comprising:

a digital processor that hosts and executes a gateway application for receiving a request to access the second wireless network, the gateway application and the mobile device associated with the first wireless network, and

a communications interface coupled with the gateway application, the gateway application configuring the digital processor to:

receive the request through the communication interface and the initial wireless network to access the second wireless network, the request being on behalf of the mobile device and indicating a network system specifying the second wireless network;

obtain through the communications interface and the intermediary network an access identifier for the second wireless network, the access identifier for use by the mobile device when accessing the second wireless network, and

provide through the communications interface the access identifier to the mobile device to use when accessing the second wireless network.

26. The network gateway of Claim 25, wherein the first wireless network is a wireless local area network, the second wireless network is a cellular telecommunications network, and the mobile device is a personal digital assistant.

27. The network gateway of Claim 25, wherein the request includes a user identification of a user of the mobile device, and the gateway application configures the digital processor to determine an identity of the network system as a function of the user identification.

28. The network gateway of Claim 25, wherein the gateway application configures the digital processor to provide through the communications interface an authentication request based on the request to a dynamic host configuration server.

29. The network gateway of Claim 25, wherein the access identifier is an internet protocol address and the intermediary network is the internet.

30. The network gateway of Claim 25, wherein the gateway application configures the digital processor to request through the communications interface the access identifier from a second network gateway for the second wireless network, the second network gateway providing the access identifier from a predefined range of access identifiers allocated to the second wireless network.

31. The network gateway of Claim 25, wherein the gateway application configures the digital processor to store the access identifier in a device database that includes a device identification for the mobile device.

32. A computer program product that includes a computer usable medium having computer program instructions stored thereon for enabling a mobile device to roam between a first wireless network and a second wireless network, the first wireless network substantially heterogeneous with the second wireless network, both the first wireless network and the second wireless network capable of communicating with an intermediary network, and the mobile device capable of accessing the first wireless network and the second wireless network, such that the computer program instructions, when performed by a digital processor, cause the digital processor to:

receive a request at the first wireless network to access the second wireless network, the request being on behalf of the mobile device and indicating a network system specifying the second wireless network;

through the intermediary network, obtain an access identifier for the second wireless network, the access identifier for use by the mobile device when accessing the second wireless network; and

provide the access identifier to the mobile device to use when accessing the second wireless network.